General Pharmacology

EDITOR
G. A. KERKUT *(Southampton)*

LIST OF CONTENTS AND AUTHOR INDEX

VOLUME 22 1991

PERGAMON PRESS
OXFORD NEW YORK SEOUL TOKYO

General Pharmacology

EDITOR

Professor G. A. KERKUT, Department of Physiology and Biochemistry, University of Southampton, Southampton SO9 3TU, England
Tel. (0703) 594341; *Fax* (0703) 594319

ASSISTANT EDITOR

Professor R. J. WALKER, Department of Physiology and Biochemistry, University of Southampton, Southampton SO9 3TU, England

HONORARY EDITORIAL ADVISORY BOARD

M. H. APRISON (Indianapolis)
R. W. BRIMBLECOMBE (Welwyn, U.K.)
G. BURNSTOCK (London)
F. V. DEFEUDIS (Grafton, U.S.A.)
V. ERSPAMER (Rome)
E. FLOREY (Konstanz)
H. M. GERSCHENFELD (Paris)
L. I. GOLDBERG (Chicago)
M. J. GREENBERG (St Augustine)
G. B. KOELLE (Philadelphia)
H. KURIYAMA (Fukuoka)
G. D. H. LEACH (Bradford)
L. LYTLE (Santa Barbara)
G. PETERS (Lausanne)
J. W. PHILLIS (Detroit)
D. W. STRAUGHAN (Radlett, U.K.)

Publishing Office: Pergamon Press plc, Pergamon House, Bampfylde Street, Exeter EX1 2AH, England [*Tel.* Exeter (0392) 51558; *Fax* 425370]

Subscription and Advertising Offices: North America—Pergamon Press Inc., Maxwell House, Fairview Park, Elmsford, NY 10523, U.S.A. Rest of the World—Pergamon Press plc, Headington Hill Hall, Oxford OX3 0BW, England [*Tel.* Oxford (0865) 794141]

Subscription Rates: Annual institutional subscription rate (1992): £555 (US$890). Two-year institutional rate (1992/93): £1054.50 (US$1691). Sterling prices are definitive. U.S. dollar prices are quoted for convenience only, and are subject to exchange rate fluctuation. Prices include postage and insurance and are subject to change without notice. Subscription rates for Japan are available on request.

Back Issues: Back issues of all previously published volumes, in both hard copy and in microform, are available direct from Pergamon Press offices.

Publication Frequency: 6 issues per annum.

Copyright © 1991 Pergamon Press plc

It is a condition of publication that manuscripts submitted to this journal have not been published and will not be simultaneously submitted or published elsewhere. By submitting a manuscript, the authors agree that the copyright for their article is transferred to the publisher if and when the article is accepted for publication. However, assignment of copyright is not required from authors who work for organizations which do not permit such assignment. The copyright covers the exclusive rights to reproduce and distribute the article, including reprints, photographic reproductions, microform or any other reproductions of similar nature and translations. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, electrostatic, magnetic tape, mechanical, photocopying, recording or otherwise, without permission in writing from the copyright holder.

Whilst every effort is made by the publishers and editorial board to see that no inaccurate or misleading data, opinion or statement appears in this journal, they wish to make it clear that the data and opinions appearing in the articles and advertisements herein are the sole responsibility of the contributor or advertiser concerned. Accordingly, the publishers, the editorial board and editors and their respective employees, officers and agents accept no responsibility or liability whatsoever for the consequences of any such inaccurate or misleading data, opinion or statement.

Photocopying information for users in the U.S.A. The Item-fee Code for this publication indicates that authorization to photocopy items for internal or personal use is granted by the copyright holder for libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service provided the stated fee for copying beyond that permitted by Section 107 or 108 of the U.S. Copyright Law is paid. The appropriate remittance of $3.00 per copy per article is paid directly to the Copyright Clearance Center Inc., 27 Congress Street, Salem, MA 01970, U.S.A.

Permission for other use. The copyright owner's consent does not extend to copying for general distribution, for promotion, for creating new works or for resale. Specific written permission must be obtained from the publisher for such copying.
The Item-fee Code for this publication is: 0306-3623/91 $3.00 + 0.00

The paper used in this publication meets the minimum requirements of American National Standard for Information Sciences—Permanence of Paper for Printed Library Materials, ANSI Z39.48-1984.

CONTENTS OF VOLUME 22

Vol. 22, No. 1

Review

Carlo Alberto Maggi 1 The role of peptides in the regulation of the micturition reflex: an update

Minireview

Trevor W. Stone 25 Receptors for adenosine and adenine nucleotides

General Papers

Vibha Pankaj and **Paul F. Brain** 33 Effects of prenatal exposure to benzodiazepine-related drugs on early development and adult social behaviour in Swiss mice—I. Agonists

Vibha Pankaj and **Paul F. Brain** 43 Effects of prenatal exposure to benzodiazepine-related drugs on early development and adult social behaviour in Swiss mice—II. Antagonists

Vibha Pankaj and **Paul F. Brain** 53 Effects of prenatal exposure to benzodiazepine-related drugs on early development and adult social behaviour in Swiss mice—III. Inverse agonists

Atsushi Miyamoto, Hisakazu Kimura and **Hideyo Ohshika** 61 Interaction between PAF and drugs that stimulate formation of inositol phosphates

Rivka Beitner, Malca Chen-Zion and **Yonit Bassukevitz** 67 Effect of the calmodulin antagonist CGS 9343B on skin burns

M. I. Martin, M. I. Colado and **M. J. Alfaro** 73 Calcitonin increases the inhibitory effect of opioids in guinea-pig ileum

I. Takayanagi, S. Onozuka, H. Ohtsuki and **M. Shinkai** 77 Contractile responses of rat aorta to phenylephrine and serotonin, and aging

M. J. Garcia de Boto, R. Molina, F. Andrés-Trelles and **A. Hidalgo** 83 Effects of tyramine on the human uterine artery *in vitro*

Satoshi Matsuoka, Takahiro Nawada, Ichiro Hisatome, Jiro Miyamoto, Junichi Hasegawa, Hiroshi Kotake and **Hiroto Mashiba** 87 Comparison of Ca^{2+} channel inhibitory effects of cibenzoline with verapamil on guinea-pig heart

C. C. A. Reis 93 Study of the contraction induced by norepinephrine and clonidine in the isolated guinea-pig ileum

João B. Calixto and **Rosendo A. Yunes** 99 Antagonism of kinin-induced contraction of isolated rat uterus by the crude hydroalcoholic extract from *Mandevilla illustris*

Peter C. Baker and **Kenneth M. Hoff** 103 The effects of cocaine upon 5-hydroxyindole levels of the maturing mouse brain

R. González, E. O. Campos, S. Morán and **N. C. Inestrosa** 107 Characterization of acetylcholinesterase from human heart auricles: evidence for the presence of a G-form sensitive to phosphatidylinositol-specific phospholipase *c*

A. Orts, C. Alcaraz, L. Goldfrank, H. Turndorf and **M. M. Puig** 111 Morphine–ethanol interaction on body temperature

Yiu K. Fung and **Yuen-Sum Lau** 117 Differential effects of chronic nicotine administration on dopaminergic receptor binding sites in rat nigrostriatal and mesolimbic regions

Contents

Mohammad Saad Al-Humayyd	121	Effect of diltiazem, nifedipine and verapamil on the antinociceptive action of acetylsalicyclic acid in mice
P. Valeri, G. Pimpinella, L. A. Morrone and **L. Romanelli**	127	Antinociceptive effects of trazodone and m-chlorophenylpiperazine (mCPP) in mice: interaction with morphine
Regina Scivoletto, Zuleica Bruno Fortes, Dorothy Nigro, Oswaldo Ubriaco Lopes, and **Maria Helena Catelli de Carvalho**	133	Enhancement of aorta tonus evoked by hypertonic solutions is endothelium-dependent
R. Vinet, C. Brieva, G. Pinardi and **M. Penna**	137	Modulation of α-adrenergic-induced contractions by endothelium-derived relaxing factor in rat aorta
Shigeru Okuyama, Hiroko Shimamura-Harada, Yasuko Karasawa, Kazuaki Kawashima, Hiroaki Araki, Masaaki Kimura, Susumu Otomo and **Hironaka Aihara**	143	Protective effects of minaprine in infarction produced by occluding middle cerebral artery in stroke-prone spontaneously hypertensive rats
Rosana A. Bassani and **José W. M. Bassani**	151	Reduced responsiveness to noradrenaline in isolated rat atria exposed to hyperosmotic solutions
N. Pencheva, R. Radomirov and **K. Venkova**	159	$GABA_A$ and $GABA_B$ receptor-mediated effects on the spontaneous activity of the longitudinal layer in cat terminal ileum
Koichiro Kawashima, Terumasa Hayakawa, Hisayo Oohata, Kazuko Fujimoto, Takeshi Suzuki, Tatsunori Ogino and **Zhengxiong Chen (Masao Chin)**	165	Antihypertensive effect of synthetic tetrandrine derivatives in SHR rats
H. W. Scheer and **P.-A. Lavoie**	169	Mechanism of aminopyridine-induced release of [^{3}H]dopamine from rat brain synaptosomes
Ferruccio Galletti, Aleta Rutledge, V. Krogh and **David J. Triggle**	173	Age related changes in Ca^{2+} channels in spontaneously hypertensive rats
A. J. Farre, M. Colombo, M. Fort and **B. Gutierrez**	177	Differential effects of various Ca^{2+} antagonists
Makie Higuchi and **Matao Sakanashi**	183	An analysis of positive inotropic effects of nitroglycerin in the canine hearts
Hideji Karibe and **Masaatsu K. Uchida**	191	Calcium reversal, relaxation by calcium ion of various smooth muscles contracted by carbachol, norepinephrine or a phorbol ester in calcium-ion free medium
D. Gattullo, S. Hyslop, N. A. Marsh, P. Pagliaro and **P. Vono**	199	Acidotic effect of Gaboon viper (*Bitis gabonica*) venom in the urethane-anaesthetized rat
G. Alloatti, D. Gattullo, R. Dalla Valle, N. A. Marsh, P. Pagliaro and **P. Vono**	203	The haemodynamic effect of *Bitis nasicornis* (rhinoceros horned viper) venom
Book Reviews	207	
New Patents	i	

Vol. 22, No. 2

Minireview

Issei Takayanagi and **Katsuo Koike**	211	Effects of aging on postsynaptic α_1-adrenoceptor mechanisms in rat aorta

General Papers

N. Satake, H. Òe, T. Sawada and S. Shibata	219	The mode of vasorelaxing action of melatonin in rabbit aorta
M. L. Vargas, J. A. Martínez, T. Fuente, J. del Rio-Garcia and M. V. Milanés	223	Influence of stress in the effects of morphine on pituitary-adrenocortical activity in the guinea-pig
S. Sagratella, M. L. Proietti, C. Frank and A. Scotti de Carolis	227	Effects of some calcium antagonists and of calcium concentration changes on CA1 paired pulse inhibition in rat hippocampal slices
S. Sagratella, Y. C. Zeng, C. Frank and A. Scotti de Carolis	231	Diversified electrophysiological properties of morphinan drugs in rats
C. Frank, S. Sagratella and A. Scotti de Carolis	237	Effects of calcium and potassium extracellular ionic concentration changes on the hippocampal CA1 activity of purinergic drugs
G. Gwinup, A. N. Elias and E. S. Domurat	243	Insulin and C-peptide levels following oral administration of insulin in intestinal-enzyme protected capsules
Terriann Crisp, Janet L. Stafinsky, Linda J. Spanos, Marc Uram, Veeraiah C. Perni and Hima B. Donepudi	247	Analgesic effects of serotonin and receptor-selective serotonin agonists in the rat spinal cord
S. Abdalla, S. Al-Khalil and F. Afifi	253	Observations on the pharmacology of thalicminine, an oxyaporphine alkaloid from *Thalictrum isopyroides*
M. Sancibrian, J. S. Serrano and F. J. Miñano	259	Opioid and prostaglandin mechanisms involved in the effects of GABAergic drugs on body temperature
Koichiro Kawashima, Hamao Toda, Hisayo Oohata, Kazuko Fujimoto, Takeshi Suzuki and Osamu Inagaki	263	Antihypertensive and diuretic effects of YM-09730-5, a new calcium antagonist, in stroke-prone spontaneously hypertensive rats
Yong Wha Kwon and David J. Triggle	267	Effects of Ca^{2+} channel ligands on [^{3}H]QNB binding at m_1 and m_3 muscarinic receptors
J. P. De la Cruz and F. Sanchez de la Cuesta	271	Does the association dipyridamole–aspirin only act by a functional synergism?
Stefano Manzini, Francesca Perretti, Manuela Tramontana, Elena Del Bianco, Paolo Santicioli, Carlo Alberto Maggi and Pierangelo Geppetti	275	Neurochemical evidence of calcitonin gene-related peptide-like immunoreactivity (CGRP-LI) release from capsaicin-sensitive nerves in rat mesenteric arteries and veins
M. Luisa Laorden, M. Dolores Carceles, Fernando S. Miralles and Jesus Hernandez	279	Naloxone modifies the inotropic decrease induced by halothane on isolated left atria
Ana Maria Buzaleh, Elba Susana Vazquez and Alcira Maria Del Carmen Batlle	281	*In vitro* effect of cyanide, thiosulphate and S-adenosyl-L-methionine on the activity of rhodanese and other enzymes
Akifumi Togari, Makoto Kondo, Michitsugu Arai and Shosei Matsumoto	287	Effects of retinoic acid on bone formation and resorption in cultured mouse calvaria
J. C. Leza, I. Lizasoain and P. Lorenzo	293	Effects of antihistaminics on locomotor activity in mice. Comparison with opiate and amphetamine-induced hyperactivity
I. Lizasoain, J. C. Leza and P. Lorenzo	297	Buprenorphine: bell-shaped dose-response curve for its antagonist effects

F. A. Wali and **V. Makinde**	301	Effects of pancuronium and vecuronium on creatine phosphokinase in rat isolated heart, liver, kidney and diaphragm
Penelope A. Longhurst, Jane Kauer and **Robert M. Levin**	305	The ability of insulin treatment to reverse or prevent the changes in urinary bladder function caused by streptozotocin-induced diabetes mellitus
Asbjørn Røed	313	Selective potentiation of subtetanic and tetanic contractions by the calcium-channel antagonist nifedipine in the rat diaphragm preparation
P. Persico, A. Capasso, A. Calignano and **L. Sorrentino**	319	The action of dexamethasone on electrically-induced contractions of guinea-pig isolated ileum
Alluru S. Reddi	323	Prevention of albuminuria by captopril in diabetic rats
Micha Y. Rabau, Mimi Baratz and **Paul Rozen**	329	Na_2 ethylenediaminetetraacetic acid retention enema in dogs. Biochemical and histological response
J. V. Georgieva	331	Influences of diterpene sclareol glycol on some dopamine related behavior
C. Boulanger and **P. M. Vanhoutte**	337	Ouabain, Na^+-free and K^+-free solutions and relaxations to nitric oxide and nitrovasodilators
B. Gómez, J. Borbujo, A. L. García-Villalón, E. Nava-Hernández, J. Valle, J. L. García and **G. Diéguez**	341	$Alpha_1$- and $alpha_2$-adrenergic response in human isolated skin arteries during cooling
Peter C. Baker and **Kenneth M. Hoff**	347	The effects of acute and extended monoamine oxidase inhibition upon 5-hydroxyindoles in maturing mouse brain
A. L. López de Pablo, E. J. Marco, J. M. Benito, M. L. Fraile, M. L. Sanz, M. J. Moreno and **M. V. Conde**	353	Response of isolated cat middle cerebral artery to platelets: effect of endothelium removal
Richard E. Simpson III, John W. Phillis and **Joel Buchanan**	359	Nifedipine reduces the increases in cerebral blood flow during hypercapnic episodes
R. Vinet, C. Brieva, G. Pinardi and **M. Penna**	365	Influence of extracellular Ca^{2+} on the modulation of α-adrenergic-induced contractions in rat aorta
Denis Riendeau, Jocelyne Guay, Aidan Foster, Shari Wolfe and **Chi-Chung Chan**	371	Inhibition of leukotriene B_4 biosynthesis by disulfiram and A-64077 during carrageenan-induced pleurisy in the rat
Prakash V. Sulakhe, Gowraganahalli Jagadeesh and **Ngoc T. Phan**	375	Divalent cation-sensitive antagonist binding to heart muscarinic receptors
Z. Szreder and **Z. Korolkiewicz**	381	Inhibition of pyrogen *Escherichia coli* fever with intracerebral administration of prazosin, dihydrobenzperidol and nifedipin in the rabbits
B. M. Nabishah, P. B. Morat, B. A. Kadir and **B. A. K. Khalid**	389	Effect of steroid hormones on muscarinic receptors of bronchial smooth muscle
Hui-Fang Liu, Jacques Magdalou, Alain Nicolas, Chantal Lafaurie and **Gérard Siest**	393	Oral contraceptives stimulate the excretion of clofibric acid glucuronide in women and female rats
Xie-Nan Huang, Issei Takayanagi, Ryuichi Kurata and **Tetsuhiro Hisayama**	399	Ca^{2+}-dependence of endothelin-1 induced contraction of rat tail artery
Nduna Dzimiri and **Abdulrahman A. Almotrefi**	403	Comparative effects of procainamide, tocainide and lorcainide on Na^+–K^+-ATPase in guinea pig heart preparations

A. V. Juorio, A. J. Greenshaw, M. Y. Zhu and **I. A. Paterson** 407 The effects of some neuroleptics and *d*-amphetamine on striatal 2-phenylethylamine in the mouse

Book Reviews 415

New Patents i

Vol. 22, No. 3

Moises G. Zeitune and **Pablo M. Bazerque** 419 Reserpine non-selectively inhibits rat uterus contraction *in vitro*

Hemendra N. Bhargava, George Matwyshyn and **Poduri Ramarao** 429 The effect of U-50,488H, a κ-opiate receptor agonist on tolerance to the analgesic and hyperthermic effects of morphine in the rat

J. R. Pérez Vallina, B. Cantabrana and **A. Hidalgo** 435 Mechanisms involved in the effects of phenidone, diclofenac and ethacrynic acid in rat uterus *in vitro*

Shoji Shibata, Nobuhiro Satake, R. Kelly Hester, Seiichiro Mochizuki, Kazuhiro Kosakai, Naoto Ueyama and **Shuichi Wakabayashi** 443 Characterization of the vasoinhibitory actions of KT2-230, a new benzothiazepine vasodilator derivative on isolated rabbit vascular smooth muscles: an alpha-adrenergic- and serotonergic-receptor antagonist

Robert M. Rapoport 449 Inhibitory effects of cyclic AMP-elevating agents on norepinephrine-induced phosphatidylinositide hydrolysis and contraction in rat aorta

Susana Nowicki and **María Amelia Enero** 459 Role of dopamine$_1$-receptors in mediating renal responses to furosemide in the rat

Kazuhiro Kohama, Toyokazu Hiramura, Hiromi Takano-Ohmuro, Hiroshi Ozaki, Hideaki Karaki and **Mitsugu Hachisu** 465 Effects of NA0344, a new smooth muscle relaxant, on the actin–myosin–ATP interaction and myosin light chain phosphorylation *in vitro*

Z. Szreder 475 The effect of prazosin pretreatment on hyperthermia produced by noradrenaline in rabbits

Simon W. Rabkin 479 D-Ala-2-Me-Phe-4-Met-(*O*)-ol-enkephalin in the nucleus tractus solitarius of the rat produces cardiorespiratory depression

Lily C. Tang 485 Human erythrocyte as a model for investigating muscarinic agonists and antagonists

Koji Iida, Atsushi Imai and **Teruhiko Tamaya** 491 Estriol binding in uterine corpus cancer and in normal uterine tissues

Jan Gmiński, Ludmiła Węglarz, Marian Dróżdż and **Małgorzata Goss** 495 Pharmacological modulation of the antioxidant enzymes activities and the concentration of peroxidation products in fibroblasts stimulated with elastin peptides

M. Sanchez, F. Andrés-Trelles and **A. Hidalgo** 499 Effects of vanadate in testicular capsule of the rat

Teruhiko Tamaya, Keisuke Wada, Atsushi Imai, Hidehiro Mori and **Hideaki Ban** 505 Rationale for frequency and dose of administration in gestrinone therapy for pelvic endometriosis in the experimental model of rabbit uterus

Seico Hanada and **Seizi Oga** 511 Histamine release from rat mast cells induced by econazole

Margo Panush Cohen, Henry Klepser and **Van-Yu Wu** 515 Effect of alpha-glucosidase inhibition on the nonenzymatic glycation of glomerular basement membrane

Hemendra N. Bhargava and **Poduri Ramarao**	521	The effect of *Panax ginseng* on the development of tolerance to the pharmacological actions of morphine in the rat
B. Norris, C. González, J. Concha, S. Palacios and **G. Contreras**	527	Stimulatory effect of angiotensin II on electrolyte transport in canine tracheal epithelium
Marion Damarowsky and **Heinz Lüllmann**	533	A model to check the arrhythmogenic activity of anti-arrhythmic drugs
Masakazu Nishimura, Hideto Awano, Tetsuya Hasegawa, Osamu Yagasaki and **Katsuaki Ito**	539	Oxygen consumption stimulated by increases in permeability of Na^+ of mouse diaphragm muscle *in vitro*
Ali A. Mustafa	545	Bromocriptine-induced hypothermia in Balb/C mice: its possible mechanism of action
Krishnappa Venkatesh, Patricia E. Levi and **Ernest Hodgson**	549	The effect of detergents on the purified flavin-containing monooxygenase of mouse liver, kidney and lungs
Ginger A. Dickerson, I. Wade Waters, Marvin C. Wilson and **W. Marvin Davis**	553	Effect of sex steroids on cocaine lethality in male and female mice
Z. Al-Zamil, J. Bagust and **G. A. Kerkut**	559	The effect of bicuculline and baclofen on the dorsal root–ventral root reflex in the isolated spinal cord
Book Reviews	567	

Vol. 22, No. 4

F. S. Messiha	573	Effect of gossypol on kinetics of mouse liver alcohol and aldehyde dehydrogenase
M. I. Valcarcel, F. Ruiz and **M. L. Laorden**	577	Interaction between morphine and noradrenaline on isolated heart muscle
M. Boucher, C. Dubray and **P. Duchêne-Marullaz**	581	Effects of bepridil, diltiazem and verapamil on atrial refractoriness and heart rate in the conscious dog: comparison with quinidine
R. P. S. Introna, J. K. Pruett, D. C. Martin, D. Josephson and **M. Manabe**	589	Effects of sodium pentothal and sufentanil on serotonin induced constriction of canine coronary artery rings without endothelium
Wolfgang Auch-Schwelk and **Paul M. Vanhoutte**	595	Calcium antagonists inhibit contractions to norepinephrine in the rat aorta, in the absence, but not in the presence of the endothelium
Margo Panush Cohen, Henry Klepser and **Van-Yu Wu**	603	Evaluation of the effect of aldose reductase inhibition on increased basement membrane collagen fluorescence in diabetic rats
Margo Panush Cohen and **Henry Klepser**	607	Alpha-glucosidase inhibition prevents increased collagen fluorescence in experimental diabetes
Lilia Chernaeva and **Maya Yankova**	611	Age-dependent modulation of neuropeptide Y on adrenergic transmission of guinea pig vas deferens
Sam Lindgren and **Karl-Erik Andersson**	617	Comparison of the effects of milrinone and OPC 3911 with those of isoprenaline, forskolin and dibutyryl-cAMP in rat aorta
V. Georgiev and **T. Kambourova**	625	Behavioural effects of angiotensin II in the mouse following MPTP administration

Rob Leurs, Aalt Bast and **Hendrik Timmerman**	631	Fluoride is a contractile agent of guinea pig airway smooth muscle
E. Contreras and **A. Germany**	637	Adenosine analogs attenuate tolerance-dependence on alprazolam
P. Vassilev, D. Staneva-Stoytcheva and **V. Mutafova-Yambolieva**	643	Do H_3-receptors participate in the effects of histamine on electrically-evoked contractions of rat vas deferens?
Liliana Padilla, Hector Asencio, Wilma Fernandez, M. Antonieta Cruz, Veronica Neumann, Karin Reinicke and **M. Isolde Rudolph**	647	Effect of progesterone on norepinephrine release from mouse adrenergic terminals *in vitro*
A. Scotti de Carolis, S. Sagratella, C. Frank, M. Trampus and **M. L. Proietti**	651	An *in vitro* study on the hippocampal epileptogenic properties of enkephalins and enkephalinase inhibitors in rats
Hatice Gürbüz, H. Ongun Onaran and **T. Arda Bökesoy**	659	Regional histaminergic potencies in rabbit systemic circulation
M. Abe, M. Morikawa, M. Inoue, M. Tsuboi, Y. Aoyagi and **A. Ohta**	663	Effects of the mammalian lignan, 2,3-dibenzylbutane-1,4-diol, on contraction and Ca^{2+} mobilization induced by noradrenaline in rat aorta
Yiu K. Fung, Lori A. Fiske and **Yuen-Sum Lau**	669	Chronic administration of nicotine fails to alter the MPTP-induced neurotoxicity in mice
H. A. Bakathir, J. Giessler and **R. Hirschelmann**	673	Rat heart anaphylaxis: influence of mediator antagonists
Marina Roques, Denyse Bagrel, Jacques Magdalou and **Gerard Siest**	677	Expression of arylhydrocarbon hydroxylase, epoxide hydrolases, glutathione S-transferase and UDP-glucuronosyltransferases in H5–6 hepatoma cells
Kamal E. H. ElTahir, Mohamed A. S. ElNasser, Abdulrahman M. Ageel, Homeida A. El-Obeid and **Khalid A. Al-Rashood**	685	Effects of *N*-methyl- and *N*-isobutyl-1,2-diphenyl ethanol amines on the spontaneous and evoked contractions in the rat isolated uterus
Issei Takayanagi, Katsuo Koike and **Kiyoshige Saito**	691	Propylbenzilylcholine mustard-sensitive and -resistant muscarinic receptors in cardiac muscle
G. Csaba, Olga Mag and **Marianna Holub**	695	Impact of neonatal benzpyrene imprinting on thymocytic dexamethasone binding in ascitic tumor bearing rats
P. Vassilev, V. Mutafova-Yambolieva, D. Staneva-Stoytcheva and **S. Todorov**	699	Involvement of calcium ions in the modulation of electrically-induced rat vas deferens contractions by histaminergic drugs
M. Sanchez, F. Andrés-Trelles and **A. Hidalgo**	703	Effects of vanadate, ouabain and amiloride on the contraction of the rat testicular capsule to oxytocin
M. Sanchez, F. Andrés-Trelles and **A. Hidalgo**	709	Influences of sodium on the contraction induced by oxytocin in rat testicular capsule
Miguel Navarro, Juan-Carlos Leza, Ignacio Lizasoain and **Pedro Lorenzo**	713	Influence of psychogenetics in opiate tolerance and abstinence in mice
Rosa M. Ruiz de Valderas, Maria I. Serrano, Jose S. Serrano and **Ana Fernandez**	717	Effect of homotaurine in experimental analgesia tests
W. Marvin Davis, Robert B. Hackett, Keith W. Obrosky and **I. Wade Waters**	723	Factors in the lethality of i.v. phencyclidine in conscious dogs

Kinzo Matsumoto, Takashi Satoh, Li Hong Bing, Hiroyuki Ohta and **Hiroshi Watanabe**	729	Effects of forced shaking stress at low temperature on pentobarbital-induced sleeping in mice
Jay H. Williams and **Christopher W. Ward**	735	Effects of the calcium channel agonist, Bay K 8644, on the mechanical output of skeletal muscle fibers
Richard P. White, Abdullah M. El-Bauomy and **William B. Wood**	741	Capric acid as a potent dilator of canine vessels *in vitro* and *in vivo*
Tomas L. G. Andersson, Peter Zygmunt and **Ellen Vinge**	749	Some substances with proposed digitalis-like effects evaluated on platelet functions sensitive for cardiac glycosides
Camille F. Nassar, Laura E. Abdallah, Nuha Nuwayri-Salti and **Elie G. Karkaji**	755	Colchicine inhibition of duodenal absorption of calcium
M. van den Buuse and **J. Kerkhoff**	759	Interaction of bradykinin and angiotensin in the regulation of blood pressure in conscious rats
Book Reviews	763	
New Patents	i	

Vol. 22, No. 5

Minireview

Hemendra N. Bhargava	767	Multiple opiate receptors of brain and spinal cord in opiate addiction

General Papers

Giovanni Anfossi, Paola Massucco, Elena Mularoni, Franco Cavalot, Serenella Burzacca, Luigi Mattiello and **Mariella Trovati**	773	Phenothiazines inhibit collagen-induced thromboxane B2 synthesis and increase forskolin anti-aggregating effects in human platelets
Martin D. Schechter and **Denise McBurney**	779	Effect of repeated administrations upon cathinone discrimination and conditioned place preference
Issei Takayanagi, Mami Moriya, Ryuichi Kurata and **Katsuo Koike**	783	Effects of ageing on nicotine-induced contraction and substance P-like materials release in guinea-pig bronchus
Issei Takayanagi, Mami Moriya, Yasuo Kizawa, Katsuo Koike, Michiko Shinkai and **Hajime Murakami**	787	Effect of ageing on response to nicotine in rabbit bronchial preparation
Stefan Herzig, Klaus Mohr, Sönke Schmidt and **Joachim Splieth**	793	Diastolic tension and contraction amplitude in calcium-loaded rat ventricular myocardium are differently affected by drugs
Yoshiaki Akimoto, Yoshiko Mochizuki, Akio Uda, Hiroaki Omata, Jun Shibutani, Kenji Kaneko, Junichi Yamane, Akira Fujii and **Hirotsugu Yamamoto**	797	Ampicillin concentrations in human oral tissues following a single oral administration of lenampicillin
Giuseppe Cirino, Carla Cicala, Ludovico Sorrentino and **Domenico Regoli**	801	Effect of bradykinin antagonists, N^G-monomethyl-L-arginine and L-N^G-nitro arginine on phospholipase A_2 induced oedema in rat paw
Peter Rauko, Ladislav Novotný, Viera Reichelová and **Eliška Balážová**	805	Evaluation of synergism of drugs *cis*-diamminedichloroplatinum (II) and arabinosylcytosine on the level of chemical interaction with DNA and on the growth of mouse leukemia

I. S. Ebenezer and **R. F. Parrott**	811	Operant food intake in pigs following intracerebroventricular (i.c.v.) administration of prolactin
G. Csaba, Ágnes Inczefi-Gonda and **Sz. Szeberényi**	815	Lasting impact of a single benzpyrene treatment in pre-natal and growing age on the thymic glucocorticoid receptors of rats
Jacek Petrusewicz and **Roman Kaliszan**	819	Human blood platelet alpha adrenoceptor in view of the effects of various imidazol(in)e drugs on aggregation
Hiroshi Izumi	825	Participation of opioid peptide (β-endorphin) and norepinephrine in the control of compound 48/80-induced hypovolemic thirst in the rats
E. Milusheva, K. Boev and **M. Papasova**	831	The dual effect of BAY K 8644 on excitation–contraction coupling in gastric smooth muscle
Kamal E. H. ELTahir, Abdulaziz M. H. Al-Kharji and **Abdulrahman M. Ageel**	837	Influence of diethylcarbamazine and mefloquine on PGI_2 synthesis by the rat thoracic aorta and myometrial tissues
T. B. Ng, W. Y. Chan, L. Y. Sze and **H. W. Yeung**	847	Trichosanthin induces atresia of ovarian follicles and inhibits steroidogenesis in gonadotropin-primed immature mice
Issei Takayanagi, Kiyoshige Saito, Katsuo Koike and **Mitsutoshi Satoh**	851	Characterization of muscarine receptors in rabbit ciliary body smooth muscle using propylbenzilylcholine mustard
K. H. Al-Zadjali, F. C. Boyle and **S. E. Ohia**	855	Inhibition of prostaglandin synthetase alters uterine response to adrenoceptor agonists in pregnant and post-partum rats
M. I. Colado, M. J. Alfaro, V. L. del Val and **M. I. Martín**	863	Effect of cinitapride in isolated ileum obtained from guinea-pigs treated with morphine
Paola Persico, Anna Capasso, Antonio Calignano and **Ludovico Sorrentino**	867	Effect of RU-38486 on dexamethasone reversal of morphine-induced constipation in mice
M. Lynch and **H. Huddart**	869	Purinergic modulation of field stimulation responses of rat and human vas deferens smooth muscle
Stefanka L. Stancheva, Vesselin D. Petkov, Christina I. Hadjiivanova and **Vesselin V. Petkov**	873	Age-related changes of the effects of a group of nootropic drugs on the content of rat brain biogenic monoamines
Zbigniew Hrabec, Jolanta Szkudlarek and **Lilla Lachowicz**	879	Substance P and its fragments affect Ca^{2+}/calmodulin-dependent synaptosomal membrane protein phosphorylation from rat cerebral cortex
M. Silove, A. L. Ritchie and **J. Hattingh**	883	Comparative effects of adrenaline and noradrenaline on the synthesis and secretion of soluble protein by isolated hepatocytes
Martin D. Schechter	889	Effect of serotonin depletion by *p*-chlorophenylalanine upon discriminative behaviours
M. Lynch	895	A possible role for abscisic acid analogues as calcium channel blockers in mammalian smooth muscle
Libuse Stankova, Robert Bigley and **Rolf L. Ingermann**	903	The effect of cyanide on vitamin C uptake by human polymorphonuclear leukocytes
S. Hussain, J. Bagust, R. A. Ward, C. R. Gardner and **R. J. Walker**	907	Modulation of GABA-mediated inhibition in rat cerebellar slices by benzodiazepine receptor ligands
Regina Célia Spadari and **Sergio de Moraes**	917	Subsensitivity to β-adrenoceptor agonists in pacemakers isolated from senescent rats
Iwona Gągalo and **Zdzisław Szreder**	923	The effect of doxazosin, urapidil and indoramin pretreatment on fever produced by *E. coli* lipopolysaccharide in rabbits

S. Pieretti, A. Capasso, A. Di Giannuario, A. Loizzo and **L. Sorrentino**	929	The interaction of peripherally and centrally administered dexamethasone and RU 38486 on morphine analgesia in mice
Nduna Dzimiri and **Abdulrahman A. Almotrefi**	935	Interaction of bretylium tosylate with guinea-pig myocardial Na^+–K^+-ATPase
I. T. Gągało and **E. E. Hać**	939	The effect of verapamil on the thermoregulatory responses produced by endotoxin or noradrenaline in rabbits
N. Pages, M. Orosco, G. Fournier, C. Rouch, A. Hafi, A. Gourch, E. Comoy and **C. Bohuon**	943	The effects of chronic administration of morphine on the levels of brain and adrenal catecholamines and neuropeptide Y in rats
Yoshinori Marunaka	949	The sensitivity of insulin-stimulated and basal Na efflux to ouabain in frog skeletal muscle cells
Stefanka L. Stancheva and **Liana G. Alova**	955	Age-related changes of cyclic AMP phosphodiesterase activity in rat brain regions and a new phosphodiesterase inhibitor—nootropic agent adafenoxate
Yasuo Kizawa, Shinobu Inudoh, Yumi Arai, Yutaka Uemura, Masaki Ohura, Reiko Matsuura, Takashi Tsukimura and **Hajime Murakami**	959	Organic Ca^{2+}-antagonist-resistant response to FMRF-NH_2 on the molluscan smooth muscle
Issei Takayanagi, Katsuo Koike and **Mitsutoshi Satoh**	965	Interactions of N-cyclopropylmethyl(−)-6β-acetylthionormorphine with μ-, κ-, δ- and σ-opioid receptors
Bronislaw L. Slomiany, Shipra Sengupta, Zoltan Fekete, Varahabhotla L. N. Murty and **Amalia Slomiany**	969	Adrenergic and cholinergic regulation of phospholipid release in sublingual salivary gland *in vitro*
I. Wade Waters, Robert B. Hackett, Keith W. Obrosky and **W. Marvin Davis**	975	Respiratory and circulatory effects of centrally administered phencyclidine in anesthetized dogs
B. H. Ali, A. A. Abdel Gayoum, K. El Gawarsha and **M. Fakhri**	985	Lipid peroxidation, glutathione and ascorbic acid concentrations in tissues of mice treated with oltipraz: influence of cysteine and olive oil pretreatments
Book Reviews	991	
New Patents	i	

Vol. 22, No. 6

Milica Prostran, Ranka Samardžić, Z. Todorović, Danica Jovanović-Mićić, Nina Japundžić and **B. D. Beleslin**	995	The potentiation of a cardiodepressant and hypotensive effects of bradykinin by enalapril and captopril both *in vitro* and *in vivo*
M. J. Martin, E. Marhuenda and **C. Alarcon de la Lastra**	1001	Esculine, ranitidine and carbenoxolone: different modes of action on gastric mucosa
Naomi Sakiyama, Ichiro Wakabayashi, Katsuhiko Hatake and **Eizo Kakishita**	1005	Inhibitory effect of the endothelium on thrombin-induced contraction in rabbit aorta
M. R. Zarrindast, A. A. Owji and **T. Hosseini-Nia**	1011	Evaluation of dopamine receptor involvement in rat feeding behaviour
M. R. Zarrindast and **A. Minaian**	1017	Different effects of direct and indirect dopamine receptor agonists on immobility time in reserpine-treated mice
M. R. Zarrindast and **S. Habibi-Moini**	1023	Blockade of both D-1 and D-2 dopamine receptors may induce catalepsy in mice

M. R. Zarrindast and **A. Eliassi**	1027	Differential effects of dopamine agonists on locomotion in intact and reserpine-treated mice
Hemendra N. Bhargava and **Vincent M. Villar**	1033	Tolerance-dependence and serum elimination of morphine in rats implanted with morphine pellets
Shirley Estelle Freeman, Wai-Man Lau and **Maria Szilagyi**	1043	Is the inhibitory effect of somatostatin on the heart due to K^+ channel activation?
Hakan Gürdal and **F. Cankat Tulunay**	1049	Heterogeneous inhibitory effect of nitrendipine on 5-HT-responses in rabbit vascular tissues
B. L. Slomiany, J. Piotrowski, A. Ismail, G. Rajiyah, S. Tamura, W. Bielanski and **A. Slomiany**	1055	Protection against alcohol-induced gastric mucosal injury by nitecapone
B. L. Slomiany, J. Piotrowski, G. Rajiah and **A. Slomiany**	1063	Inhibition of gastric mucosal laminin receptor by *Helicobacter pylori* lipopolysaccharide: effect of nitecapone
João B. Calixto, Rosenei L. Brum and **Rosendo A. Yunes**	1071	Action of pregnane compounds from *Mandevilla illustris* against contractions induced by kinins and other oxytocics in the rat isolated uterus
Aurelio Pasi, Baoxi Qu, Rudolf Steiner, Hans-Jörg Senn, Walter Bär and **Fathy S. Messiha**	1077	Angiogenesis: modulation with opioids
V. Garcia Valencia, M. Sanchez, M. Gutierrez, B. Cantabrana and **A. Hidalgo**	1081	Effects of steroidal and non-steroidal antiandrogens on the left atrium of the rat *in vitro*
Robert F. Fricke and **Juan Jorge**	1087	Beneficial effect of dexamethasone in decreasing the lethality of acute T-2 toxicosis
J. Kamei, M. Ogawa, Y. Ohhashi and **Y. Kasuya**	1093	Alterations in the potassium-evoked release of substance P from the spinal cord of streptozotocin-induced diabetic rats *in vitro*
Abdulrahman A. Almotrefi and **Nduna Dzimiri**	1097	The effect of modifying potassium concentration on the inhibition of myocardial Na^+–K^+-ATPase by two class IB antiarrhythmic drugs: lidocaine and tocainide
J. K. Callaway, R. G. King and **A. L. A. Boura**	1103	Evidence for peripheral mechanisms mediating the antitussive actions of opioids in the guinea pig
G. E. Rice and **M. S. Baker**	1109	The effects of free radical scavengers on arachidonic acid metabolism by ovine placental microsomes
Francisco J. Miranda, Germán Torregrosa, Juan B. Salom, José A. Alabadí, Cristina Alvarez and **Enrique Alborch**	1115	Modulatory action of acetylcholine on cerebrovascular sympathetic neurotransmission
C. González, M. A. Cruz, V. Gallardo and **J. Varela**	1121	Magnesium and potassium ions on tone and reactivity of human placental chorionic veins
Nobuhiro Satake, Hiroshi Oe and **Shoji Shibata**	1127	Vasorelaxing action of melatonin in rat isolated aorta; possible endothelium dependent relaxation
Allen W. Mangel, J. Gregory Fitz and **Ian L. Taylor**	1135	Peptides do not induce contractions in gastrointestinal smooth muscle in calcium-free solution
Z. Szreder and **I. Gągało**	1139	A comparative study on the thermoregulatory effects of prazosin, dihydrobenzperidol and nifedipin on 2,4-dinitrophenol induced hyperthermia in rabbits

J. Popova, E. Ivanova, T. Tosheva and **N. Iavorska**	1143	Growth hormone and somatostatin treatment change 5-HT_1 receptor activity
J. Popova, D. Staneva-Stoytcheva, E. Ivanova and **T. Tosheva**	1147	The long-term treatment with the Ca^{2+}-antagonists nifedipine, verapamil, flunarizine and with the calmodulin antagonist trifluoperazine decreases the activity of 5-HT_1 receptors in rat cerebral cortex and hippocampus
D. Staneva-Stoytcheva, N. Danchev and **P. Popov**	1151	Changes in benzodiazepine receptors of rat brain after long-term treatment with the Ca^{2+}-antagonists nifedipine, verapamil, flunarizine and with the calmodulin antagonist trifluoperazine
Gamel Shams, Joanne Fedyna, Karl J. Romstedt, Adeboye Adejare, Duane D. Miller, Victoria F. Roche and **Dennis R. Feller**	1155	Pharmacological properties of novel bicyclic isoquinoline analogs in isolated guinea pig atria, trachea and in human platelets: relationship to trimetoquinol
Kazuko Watanabe, Minoru Onozuka, Masayuki Niwa and **Anchalee Pongchaidecha**	1165	Biological actions of β-hydroxy-L-glutamic acid, a synthesized structural analogue of glutamic acid
Sheila A. Doggrell	1169	Effects of (±)- (+)- and (−)-metoprolol, (±)- (+)- and (−)-pindolol, (±)-mepindolol and (±)-bopindolol on the rat left atria and portal vein
Nora M. Navone, Ana M. Buzaleh, César F. Polo, Susana G. Afonso, Elba S. Vázquez and **Alcira M. del C. Batlle**	1179	The effect of griseofulvin on the heme pathway—II. An exhaustive analysis during short and long-term challenge
Dennis B. McKay, Isabel Lopez, Patricia A. Sanchez, JoAnna L. English and **Lane J. Wallace**	1185	Characterization of muscarinic receptors of bovine adrenal chromaffin cells: binding, secretion, and anti-microtubule drug effects
Camille F. Nassar, Fadi M. Saadeh, Raja E. Ayyash and **Nadim M. Kanj**	1191	Effects of aminophylline and terbutaline sulfate on the contractility of feline diaphragm
Book Reviews	1199	
New Patents	i	